

**CLARK COUNTY AIR QUALITY FORUM
MINUTES**

July 10, 2007
10:00 – 12:00 p.m.

Government Center
4th Floor, Gold Room
500 S. Grand Central Parkway
Las Vegas, NV

- **Welcome and Introductions – Colleen Cripps, NDEP**

Ms. Cripps informed the Forum that Jennifer Carr was no longer with the Air Program that Ms. Carr took another position within the Division and in the interim Mike Elges would be taking over.

The meeting was attended by:

LiJuan Su	RTC of Southern Nevada
John Koswan	CC DAQEM
Karina O'Connor	USEPA
Shiang-Yuh Wu	CC DAQEM
Robert Tekniepe	CC DAQEM
Dennis Ransel	CC DAQEM
Zheng Li	CC DAQEM
Michael Elges	NDEP
Jerry Duke	RTC of Southern Nevada
Keith Letus	City of Las Vegas, Public Works
Ronald Levine	Nevada Motor Transport Association
Mandi Lindsay	Associated General Contractors, Las Vegas Chapter
Russ Merle Jr.	CC DAQEM
Beth J Xie	RTC of Southern Nevada
Richard Beckstead	CC DAQEM
Thomas War	CC DAQEM
Al Leskys	CC DAQEM
Steve Deyo	CC DAQEM
Pat Mohn	NDOT
Ayoub Ayoub	Southern Nevada Water Authority
Robert Folle	CC DAQEM
Vasant Rajauopalan	CC DAQEM
Warren Hardy	Assoc. Builders and Contractors
Russ Lucas	Jiffy Smog
Roland Fornoff	Business Environmental Program
Clete Kus	North Las Vegas
Rodney Langston	CC DAQEM

- **Public Input**

None

- **74th Legislative Session Review – Michael Elges, NDEP and Lucinda Parker, DAQEM**

Ms. Parker provided a handout on the Clark County Legislative tracking (*see attachment #1*), which she went over with the Forum. Ms. Parker did state that it was a very busy legislation session. There were a number of bills being watched, some of the bills impacted NDEP.

Mr. Elges did go over a few more bills that were passed:

AB217 – Revised the membership of the State Environmental Commission (SEC). It designates that one of the at large members has to have experience relating to conservation issues.

AB94 – An act relating to administrative procedure, eliminating the prohibition against the admission of a person as a party to an administrative proceeding in a contested case involving the grant, denial or renewal of a license if the person does not have a direct financial interest.

SB452 – A lengthy DMV clean up bill that fundamentally requires DMV, for smog check regulation to go through the SEC rather than DMV themselves adopting regulations.

AB67 – This bill was proposed by NDEP. With the development of the Federal Clean Air Mercury Rule, we proposed a change in our statutory provisions which would allow the state to be able to go to market with either allowances or offsets emissions that are sellable. There was also one other component, administrative fines, which had not been updated since the early 70's. We proposed the ceiling of \$500.00 be elevated a little more.

AB115 – Allows for hiring a couple of additional inspectors that are dedicated to doing on-site visits of the mine facilities that are subjected to our new mercury program. It also required state MSHA to come up with new health base worker safety standards for the handling of mercury in areas or portion of the facilities where mercury is being handled or dealt with.

SB 118 – Change in statute that deals with long time handling and storage of mercury in Nevada. The Federal Government wants to consolidate its national repository of mercury and ship it to Hawthorne to be stored at the Army depot in Nevada. SB 118 took the administrative regulation established through our SEC for proper storage and handling of mercury a step further and made sure there were statutory requirements in place

Questions asked by attendees: Is the registry on greenhouse gas just for electric generations? The response was yes, at this point for 5 megawatts and larger and it is nonrenewable.

1. Ms. Cripps informed the Forum that the Governor's committee has already made a recommendation on the registry and last week we became an official member of the National Registry. The Governor's committee is meeting monthly, they have kind of an outline of all the things they will be working on.

- **NDOT Air Monitoring along U.S. 95 – Pat Mohn, NDOT**

Mr. Mohn presented a PowerPoint presentation (*see attachment #2*) on the Air Monitoring NDOT has been doing along U.S. 95.

Questions asked by the attendees:

1. How can you tell if the chemicals are coming from traffic or being emitted from the construction of furniture from inside the schools? Hopefully, that is where the measurement comes in, chemicals inside the schools vs. traffic.

- **Ozone Modeling Briefing – Zheng Li, DAQEM**

Mr. Li presented a PowerPoint presentation (*see attachment #3*) on the Ozone Modeling Briefing. Mr. Li did state that there were three types of models and that photochemical model is the key model.

No questions were asked.

- **Clark County Ozone Clean Data Finding – John Koswan, DAQEM**

Mr. Koswan presented PowerPoint presentation (*see attachment #4*) on the Ozone Clean Data Finding. Mr. Koswan did state that Clark County was currently in attainment for the current 8 hour Ozone standard.

Questions asked by the attendees:

1. Can we take less than a year? Ms. O'Conner from USEPA stated possible and that it would actually be cleanest for USEPA to go forward with it at this point. EPA is working on redesignation request in other areas, there's nothing really to hold us up. There is going to be some trickiness when we write the notice because it's not perfectly clear what we're waving, because of the court decision.
2. DAQEM can work concurrently on the development of a budget right? Ms. O'Conner state yes there was nothing to keep DAQEM from working on that.

- **PM₁₀ Milestone Achievement Report (MAR) and PM₁₀ Maintenance Plan Project Plan & Schedule – Rodney Langston, DAQEM**

Mr. Langston gave an overview on the Milestone Achievement Report and the PM₁₀ Maintenance Plan (*see attachment #5*).

No questions were asked.

CO Maintenance Plan – Robert Tekniepe, DAQEM

Mr. Tekniepe stated the Clark County has been working on a CO maintenance plan. Back in 1990 under the Clean Air Act, the valley was designated as moderate non-attainment for CO. In the mid 90's they were designated as serious for non-attainment of CO. Clark County submitted a SIP and have not had an exceedance of CO since 1998 of the 8 hour standard. Clark County has never had an exceedance of the 1 hour standard. Although Clark County is in attainment of CO they are still designated to be in non-attainment by USEPA. Clark County would like to change the designation to be in attainment that is why we are doing a CO Maintenance Plan. CO is a winter time pollutant.

Clark County has control measures in place generally from the beginning of October to the end of March. Most of the control measures deal with mobile source. Three of them deal with fuel specifications and one is the inspection maintenance program. Clark County is looking at making some modifications to these control measures. The oxygenation program which requires a 10% oxygenation by volume or 3.5 percent by weight on all gasoline motor fuels in the winter months, were looking at eliminating that control measure. The second one is the re-vapor pressure measurement of the aromatic component of the fuel. The third one is Air Quality Regulation 54 which deals with cleaner burning gasoline. The fourth control measure that is being looked at deals with the inspection maintenance program.

Clark County is looking at getting the CO Maintenance Plan to the stakeholders in the late fall or early winter for review with the final plan completed around the end of this year or by late January of next year.

Questions asked by the attendees:

1. Who are the stakeholders? Public comment.
2. Will TAC see it? TAC will see it along with the AQF. It will go through the formal process and will also be on the website.

- **Wrap Up/Next Meeting**

The next meeting is scheduled on November 13, 2007 at 10:00 am. Topics for next meeting:

1. New Safety Review in terms of broadening of committee structures.
2. Results of the SLOTS study.

Attachment 1



CLARK COUNTY 2007 LEGISLATIVE TRACKING SYSTEM Air Quality and Environmental Management Report of Bills Signed by the Governor

MEASURE NUMBER and DIGEST

AB 115

Under current law, the Administrator of the Division of Industrial Relations of Department of Business and Industry is authorized to adopt regulations for mine health and safety. Section 1 of this bill requires the Administrator to adopt regulations as necessary to provide safe and healthful working conditions at mines.

Under current law, the State Environmental Commission is required to adopt regulations that require a person operating or responsible for the existence of a source of air contaminant to apply for and obtain an operating permit and to charge appropriate fees for an operating permit. Section 2 of the bill requires the Commission to adopt regulations prescribing a fee for operators of mines with the potential to emit mercury, which must be in addition to the fee for an operating permit. The additional revenue will be used by the State Department of Conservation and Natural Resources to pay for employees that will monitor compliance with the Nevada Mercury Air Emissions Control Program. 512.131, new section in Chapter 445B, 445B.100, 455B.105 Effective June 14, 2007

SB 324

Current law regulates the sale of motor vehicle fuel and requires the State Board of Agriculture to adopt regulations setting forth the standards for motor vehicle fuel used in internal combustion engines. This bill requires the Board to adopt by regulation specifications for motor vehicle fuel:

- 1) Based upon scientific evidence that demonstrates that any motor vehicle fuel that is produced in accordance with the specifications is of sufficient quality to ensure appropriate performance when used in a motor vehicle in this State; or
- (2) Proposed by an air pollution control agency to attain or maintain national ambient air quality standards in any area of this State. The bill also requires the Board to adopt by regulation procedures for allowing variances from the specifications for motor vehicle fuel. Effective October 1, 2007

SB 422

Under current law, the State Environmental Commission may adopt certain regulations to prevent, abate, and control air pollution and establish standards for air quality. Section 5 of this bill requires the Commission to mandate the reporting of greenhouse gases emitted by certain generators of electricity in this State for inclusion in a registry of greenhouse gas emissions and to establish the requirements for participation in the registry. Section 4 of the bill defines a "greenhouse gas" to mean carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, and sulphur hexafluoride. Section 5 authorizes the Commission to prescribe the requirements and procedures for reporting the emissions of greenhouse gases that must be included in the registry, methods for determining the greenhouse gases that must be reported, and methods for independently verifying the information that is reported. The Commission may establish the reporting period, but the period must not exceed 1 year.

Section 6.5 of the bill requires the State Department of Conservation and Natural Resources to issue, at least every 4 years, a statewide inventory of greenhouse gases released in this State. The inventory must include the origins, types, and amounts of the greenhouse gases, together with the Department's analysis of those gases, and must be supported with documentation.

New sections in Chapter 445B, various other sections in Chapter 445B Effective July 1, 2007

MEASURE NUMBER and DIGEST

AB 321

Section 3 of this bill defines "replica vehicles" and exempts such vehicles from the inspection requirements required by chapter 445B of NRS. Section 1 of the bill provides that the State Department of Motor Vehicles may not register more than 100 replica vehicles per year.

New section in Chapter 482, 445B.759 Effective July 1, 2007

SB 60

Under current law, a local air pollution control board in a county whose population is 400,000 or more (currently Clark County) may delegate its authority to adjudicate violations of air quality laws and levy administrative penalties to an independent hearing officer or hearing board. A local air pollution control board that makes this delegation may retain 17.5% of the amount of the proceeds from the administrative penalties that it collects up to a maximum of \$17,500 per year. The remainder of the proceeds are turned over to the county school district. This bill authorizes the school district to expend its share of the proceeds from administrative penalties only in accordance with a spending plan that is approved by the local air pollution control board. The board is required to approve such a spending plan if its proposed expenditures are reasonable and limited to:

- (1) programs of education on topics relating to air quality; and
- (2) projects to improve air quality, such as the purchase and installation of equipment to retrofit school buses of the school district to use biodiesel, compressed natural gas or a similar fuel formulated to reduce emissions. 387.205, 445B.500 Effective July 1, 2007

SB 161

Under current law, the State Environmental Commission and the Department of Motor Vehicles must conduct a program for the control of emissions from motor vehicles in designated areas of a county whose population is 100,000 or more (currently Clark and Washoe Counties). In those areas, a motor vehicle that has been registered for not less than 2 years may not be registered without evidence that the vehicle (1) is equipped with the pollution control devices required by state and federal law and (2) has passed an inspection to ensure that the devices are operating properly. Current law further authorizes the Commission to exempt designated classes of motor vehicles from the program for the control of emissions. This bill exempts hybrid electric vehicles that are 5 years old or less from the emissions program. 445B.825 Effective October 1, 2007

Attachment 2



Hi, I'm Pat Mohn from NDOT. I work in the Environmental Services Division, and I have responsibility for air quality matters for the department.

In past forums, I mentioned that NDOT had been planning a monitoring study for MSATs. Well, we've now begun this work, and I want to thank the forum organizers (Dennis & Jennifer?) for inviting me to talk today about the work we are doing in Las Vegas.

NDOT Sponsorship of MSAT Study

- **In June 2005, the FHWA, NDOT, and the Sierra Club settled a year-long lawsuit that delayed major construction on the U.S. 95 widening project in Las Vegas.**
- **The agreement requires NDOT and the FHWA to perform ambient monitoring of MSATs.**
- **NDOT's part involves monitoring along U.S. 95 in Las Vegas. NDOT will also fund a portion of the FHWA's work.**



I'm sure that all of you heard about the Sierra Club lawsuit against the U.S. 95 project. The issue surrounding all of this was whether MSATs should be addressed in NEPA documents.

The Sierra Club filed the lawsuit after the USDOT handed down a favorable ROD for the U.S. 95 EIS, and after major construction had begun.

The FHWA & NDOT prevailed in Nevada federal court, who held that all NEPA requirements had been met. But, the Sierra Club appealed, and construction along U.S. 95 was stopped for about a year.

To get the project going again, the FHWA and NDOT settled with the Sierra Club, effectively lifting the injunction and allowing major construction to resume.

One element of the settlement requires NDOT to monitor MSATs along U.S. 95. NDOT is also making \$700K available to the FHWA for their monitoring under the settlement agreement.

U.S. 95 MSAT Study

- **U.S. 95 Settlement Agreement specifies that NDOT commission an ambient air monitoring study to characterize the concentrations of MSATs along U.S. 95.**
- **Sonoma Technology, Inc. (STI) was chosen by the NDOT, FHWA, and the Sierra Club to plan and implement the study.**
- **NDOT is spending approximately \$2.1 million on MSAT ambient monitoring.**



The settlement specified that the parties collaboratively pick an independent expert to perform MSAT monitoring.

We started the process in February of 2006. I prepared a broad scope of work, candidate firms were identified, and RFQ's were solicited from each of the candidate firms.

In April of 2006, the proposals were reviewed. Nationwide, there are only a handful of qualified firms that could handle a project like this, as we were told by the EPA people who had seen the proposals.

All parties agreed that Sonoma Technology was best qualified to design and implement the study, and we are very happy that they are working on this project. They have been great partners to work with.

Between NDOT's portion of the study, plus what we are contributing to the FHWA's pooled fund, NDOT is committed to spending a substantial amount on MSAT monitoring - upwards of about \$2.1 MM.

What Are MSATs?

- MSATs are trace air contaminants identified in exhaust from mobile sources.
- MSATs have potential to adversely affect human health or the environment, but the USEPA has not set ambient air quality standards for them.
- MSATs are emitted from motor vehicles (cars, trucks, buses) and non-road engines (lawn & garden equipment, aircraft, trains, construction equipment, boats). Some MSAT compounds are also emitted from stationary and area sources (industrial plants, gas stations).
- MSATs are regulated by the USEPA under authority of the Clean Air Act.



MSATs are trace air contaminants that have potential to adversely affect human health or the environment.

But, unlike some of the air pollutants we commonly hear about, such as CO, PM, and ozone, there no ambient standards for MSATs.

Mobile sources include motor vehicles and off-road equipment – basically a mobile-source is any piece of equipment with an engine that propels it. But, some stationary and area sources, like industrial plants and gas stations, can also be sources of some of these same MSAT compounds.



Elements of U.S. 95 MSAT Study

- **The CCSD agreed to allow access to school properties – Adcock Elem., Western H.S., and Fyfe Elem. Hancock Elem. functions as a background site.**
- **Unique opportunity to test MSAT control efficiencies of air filtration systems at the schools.**
- **Perform measurements both before and after new lanes of U.S. 95 are opened.**



This study would not be possible without cooperation from the CCSD. They have allowed largely unfettered access to their properties along U.S. 95.

The basic task for NDOT under the settlement is to characterize the ambient concentrations of MSATs adjacent to U.S. 95.

But, using the schools as monitoring locations also allows a unique opportunity to measure indoor MSAT concentrations, and to test newly-designed air management systems at each school.

6 Priority MSATs

Identified by the USEPA as possibly linked to cancer in humans or animals. Measure as part of U.S. 95 MSAT study.

- Diesel Particulate Matter (DPM)
 - Benzene
 - Formaldehyde
 - Acetaldehyde
 - Acrolein
 - 1,3-Butadiene
- Gaseous MSATs**



These 6 priority MSATs were identified in the settlement agreement, and they are a subset of the 21 mobile-source HAPs. If new ambient standards were to be formulated by the USEPA, these 6 would be good candidates for development of air quality criteria.

As was mentioned previously, ambient standards for these compounds have not been determined. But it's important to remember that all of these compounds are regulated in some measure by the USEPA.

MSAT Monitoring Sites



No specific notes.

STI Implementation Plan

- Short-term (2-3 week) intensive sampling of gaseous MSATs inside and outside of the schools.
- Long-term continuous monitoring of surrogate compounds - EC (surrogate for DPM), CO, NO_x, PAH's, and nephelometers for fine PM.
- Meteorological observations (WS, WD, T, P, RH, and solar radiation).
- STI donated NO_x, PAH, and light-scattering monitors to the study.



With regard to the last point, this partnership with STI is beneficial to us.

Comments we've received last winter on our initial plan were taken to heart. But, NDOT was tapped out as to allocating additional funds to the study.

As a result, STI donated extra monitoring equipment for the full duration so as to enhance the power of the study.

Intensive Sampling

- Daily grab samples of hydrocarbons (benzene, butadiene, acrolein) using canisters.
- Daily grab samples of carbonyls (formaldehyde, acetaldehyde, acrolein) using cartridges.
- One short-term intensive is completed. Another planned for winter 2007-08.



Canisters for samples are made of stainless steel, and they are pretty expensive, but they can be cleaned and re-used. The sample canister is sent to a lab, where the gases are analyzed using GC/MS.

Cartridges are filled with an adsorbent, dinitrophenyl hydrazine. These cartridges are for sampling aldehydes (or anything with a CO group). Cartridges are desorbed at a laboratory, and the eluent containing the compounds of interest are analyzed using HPLC.

STI completed two short-term intensives on June 29. One part when kids were in school, and after school got out. They will do another intensive this winter.

Continuous Monitoring

- Continuous monitoring of fine PM, EC, CO, NO_x, and PAH using automated instruments.
- Continuous monitoring for 13-month duration (May 2007 – June 2008)
- Collection of traffic data concurrent with monitoring – will enhance interpretive power of the study.



The continuous monitoring component of the study will be a powerful tool, as STI will be able to interpret the gaseous MSAT grab samples in the context of these other components. The continuous monitoring will also cover more of the seasonal variability.

The power of the study will also be enhanced because STI will be able to correlate traffic activity data, as measured using traffic counts and speeds, to the concentrations of the various MSATs they are measuring.

Monitoring Trailer Adcock Elementary

- Equipment trailers are custom built.
- Contains apparatus for both long-term continuous and short-term intensive sampling.
- Site logistics complex – i.e. electrical, space, security, and internet are different at each site.



This slide shows a view of what a typical equipment set-up looks like.

The CCSD provided many in-kind services to the study, including the construction of security fencing at each school, plus internet and electrical hook-ups.

This is a fairly large study and logistics are pretty complicated at each site. (Describe sampling lines at Adcock).

By contrast, at both Fyfe and Western, there are separate outdoor and indoor set-ups.

Monitoring Site at Fyfe Elementary

- Dave Vaughn of STI installing a nephelometer on top of monitoring trailer.
- This particular trailer is for measuring outdoor ambient MSAT concentrations.
- Nephelometers measure light scattering in ambient air due to the presence of fine particulate matter.



The monitoring set-ups at Fyfe and Western are more typical. There is an outdoor sampling trailer, and another set-up next to a modular classroom to sample the indoor air. Each trailer contains the same equipment.

On this particular day, I didn't visit Western H.S., but there is a trailer in the ball field about 150 meters from U.S. 95 and there is another instrument shelter on the roof for indoor sampling.

What's interesting is that STI is using light-scattering instrumentation to measure fine PM, as an alternative to the FRM for PM_{2.5}, so that continuous data on fine particles can be collected.

In-Classroom Monitoring

- STI installed a second trailer at Fyfe to measure indoor MSAT concentrations.
- MSATs will be measured inside the modular classroom and at the air inlet to the classroom.



- In-classroom monitoring at all three schools will help determine how well air management systems perform at each school.



This is an example of one of the set-ups to measure indoor MSATs. The idea is to measure concentrations at the air inlet and in the classrooms, and to compare them to assess the effectiveness of the air management systems at each school.

We hope that this information will be useful to the school district when they design new schools or retrofit the HVAC systems in older ones.

Instrumentation for Continuous Measurements



- Each trailer contains racks for gas and particle analyzers.
- This trailer contains a CO analyzer and an aethalometer.
- Aethalometers measure suspended particulates by capturing them on a tape.
- The amount of light absorption by the particles can be calibrated to the mass of EC.



This slide is a view of some of the instruments inside one of the trailers.

Indoor & Outdoor EC, ambient CO, and fine PM are measured at each school. NOX and PAH's are also measured at Western in addition to the others.

EC and Fine PM are measured at the Hancock background site.

Met data is collected at all the sites, including the background site.

Concurrent Traffic Activity Data

- Traffic activity data is important for interpreting MSAT concentrations.
- NDOT is collecting traffic counts, average speeds, and vehicle class data for the duration of the MSAT study.
- Traffic data is collected using radar technology. Data files are provided directly to STI by NDOT's ITS consultant.



One important component of the study is to collect traffic data along with the ambient gas samples.

We are getting 1-minute data from the ITS radars, which are located at Adcock and Western.

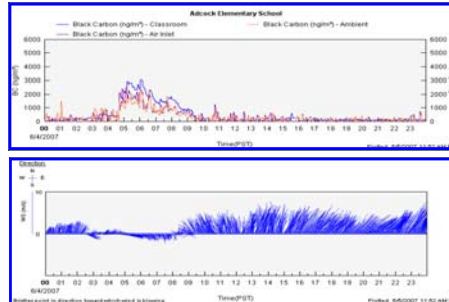
The traffic data is important to assess the impact of traffic on MSAT concentrations.

Data Retrieval



- Joey Landreneau of STI is setting up data management software at the Fyfe outdoor ambient site.

- STI can view continuous monitoring data in real-time at their Petaluma, CA office.



The hallmark of what STI is doing involves tracking continuous monitoring data remotely, so they can compare and interpret different data types at the same time.

STI will be tracking continuous monitoring data over the next 12 months.

Plans for the Future

- Outdoor continuous ambient monitoring of fine PM, EC, CO, NO_x, and PAH until June 2008.
- A 2nd intensive sampling period for gaseous MSATs is planned for winter 2007-08 after U.S. 95 lanes are opened.
- Preliminary results indicate that average EC concentrations are fairly low, but there are short-term spikes of higher concentrations. STI anticipates higher avg. EC values in winter. Analyses are pending for the gaseous MSAT samples.
- STI to prepare a formal report after all monitoring completed, and they can also publish the results in peer-reviewed scientific journals.



There is much work left to be done.



USEPA Control Programs for MSATs

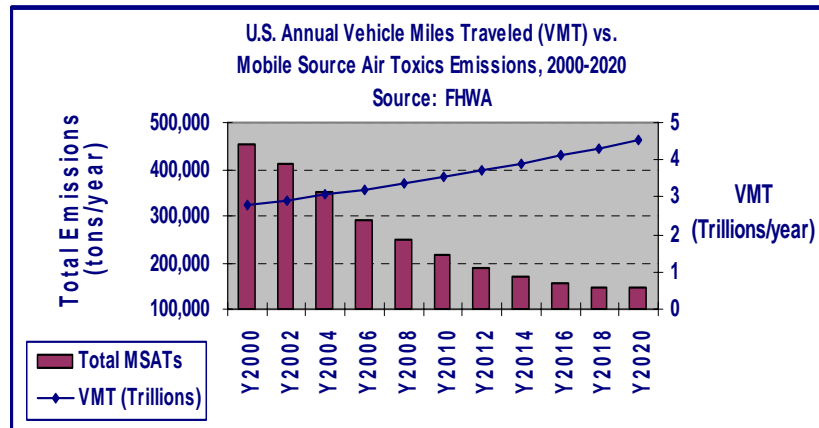
- The USEPA is aware of the growing body of evidence that suggests near-roadway air pollution can adversely affect human health.
- The USEPA has been regulating air pollutant emissions from mobile sources for the last 30+ years. All air pollution control is based on reducing or eliminating emissions at their source – in this case the vehicles themselves.
- USEPA control programs enacted since 2001 will serve to further reduce occupational and environmental exposure to MSATs. All these control programs focus on engine technology, fuels, and consumer products.
- Reducing exposure to MSATs will reduce the overall cancer and non-cancer health risks associated with MSATs.



The USEPA recognizes that there are significant scientific uncertainties in understanding the relationship between adverse health effects and near-road exposure.

Nevertheless, the USEPA's mobile source control programs will reduce emissions of MSATs and other pollutants, thus providing tangible public health benefits both nationwide and locally.

Projected MSAT Trends



- The USEPA's control programs will reduce MSAT emissions by 68% between 2000 and 2020, despite the nationwide 64% growth in traffic activity.



Do we need to be concerned about near-roadway pollution? Yes, absolutely. But I think there is reason for optimism, as this chart shows.

Again, the key is control of emissions at their source – the vehicles themselves - and that's what the EPA's control programs are designed to do.

I've done several project-level MSAT analyses and there are similar reductions.

Acknowledgements

- **STI Scientists**
 - Paul Roberts, Joey Landreneau, and Dave Vaughn.
- **Clark County School District**
 - Paul Gerner, Joe Obrien, Steve Dellostritto.
- **NDOT ITS**
 - Jon Dickinson, Dan Preslar (TransCore)
- **NDOT Traffic Information**
 - Randy Travis, Dave Leegard, Bryan McCurdy, and Mike Lawson
- **NDOT Project Management**
 - John Terry
- **NDOT Administration**
 - Rudy Malfabon, Deputy Director
- **NDOT Construction Division**
 - Abid Sulahria, K.D. Warach, and Steve Stutheit



A lot of people are involved in this project, and for a relatively small transportation agency like NDOT, this is a tremendous undertaking.

So, I think it's fitting to acknowledge.....

Attachment 3

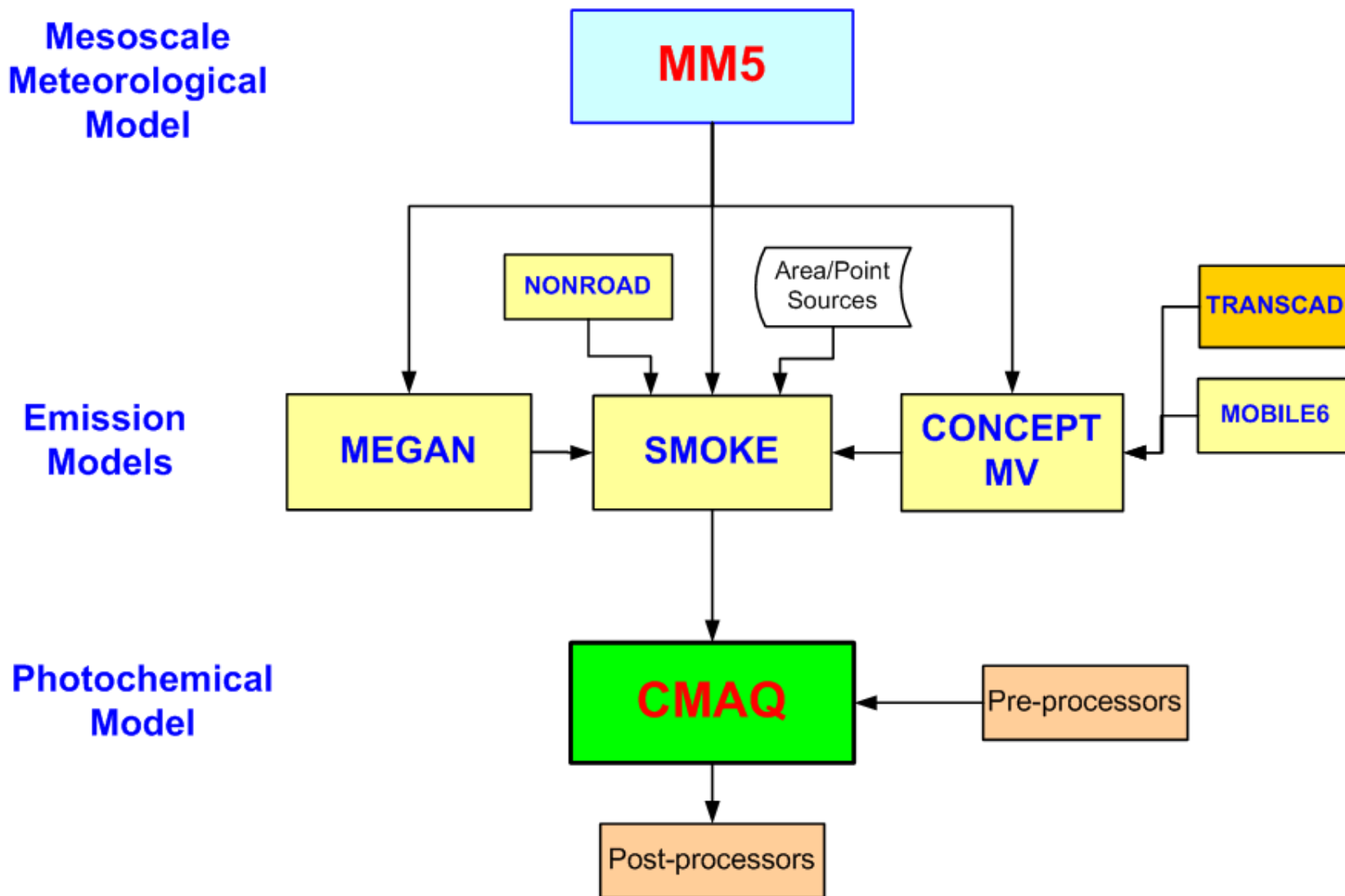
Clark County Ozone Modeling

**Zheng Li
Shiang-Yuh Wu**

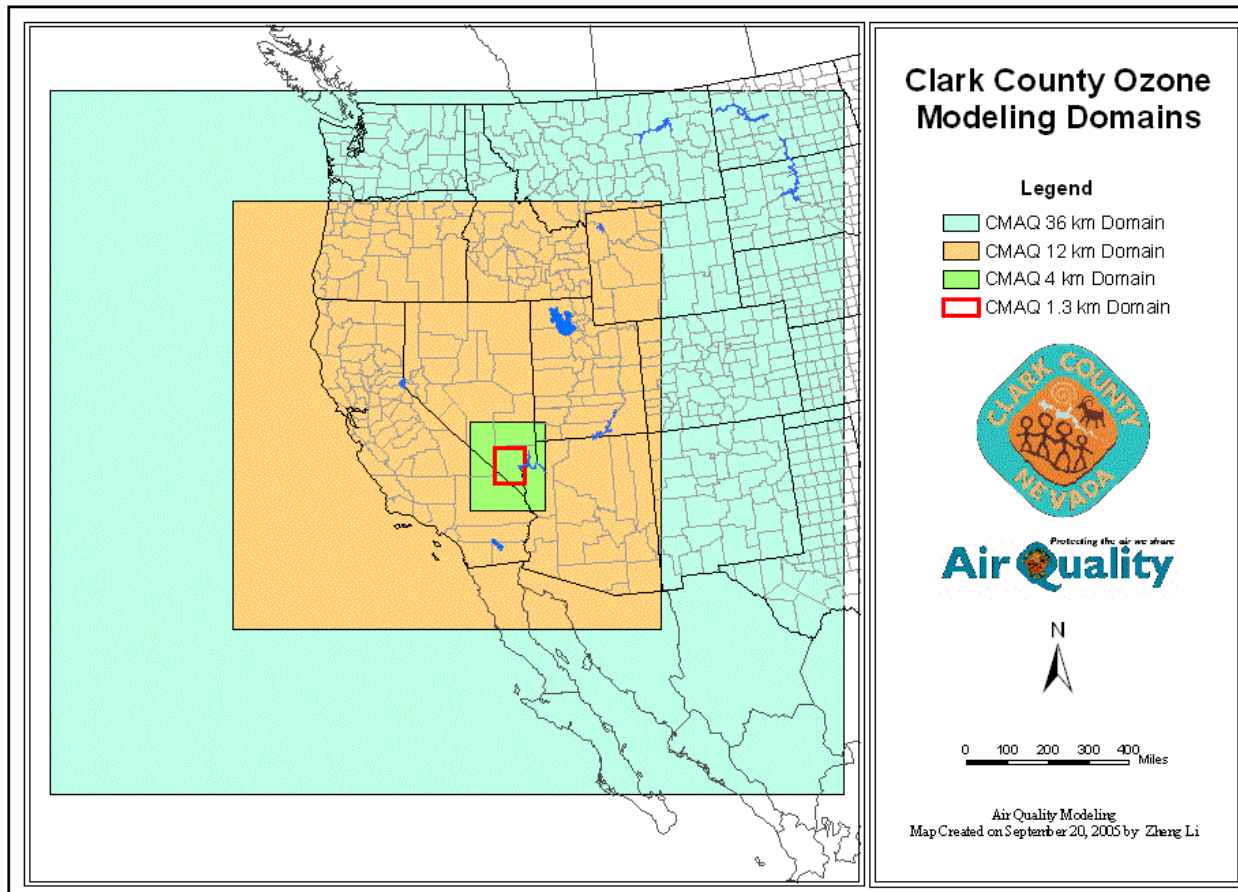
**Department of Air Quality and Environmental
Management
Clark County, Nevada**

**Clark County Air Quality Forum
July 10, 2007**

Clark County Ozone Modeling System



Clark County Ozone Modeling Domains



**36, 12, 4, 1.3 km
Grids**

19 vertical layers

Lambert Conformal

Modeling Episodes

Modeling Periods

CMAQ : May 19 – June 15, 2003

June 20 – July 23, 2003

High Ozone Episodes

May 26-27, 2003

June 1-4, 2003

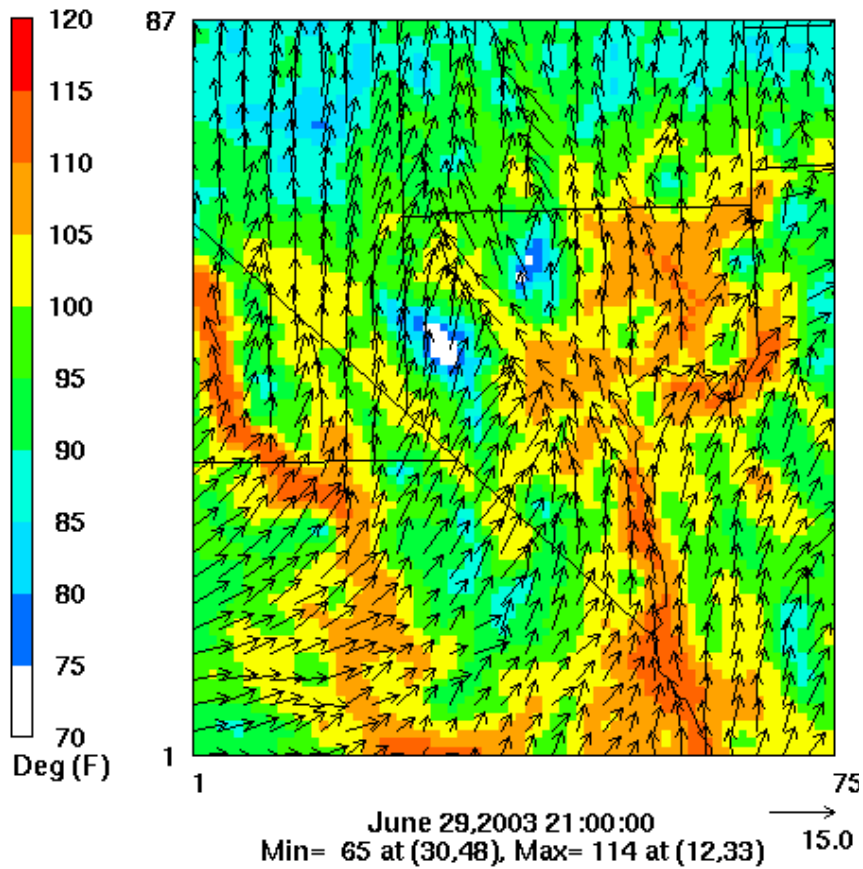
June 29, 2003

July 9, 2003

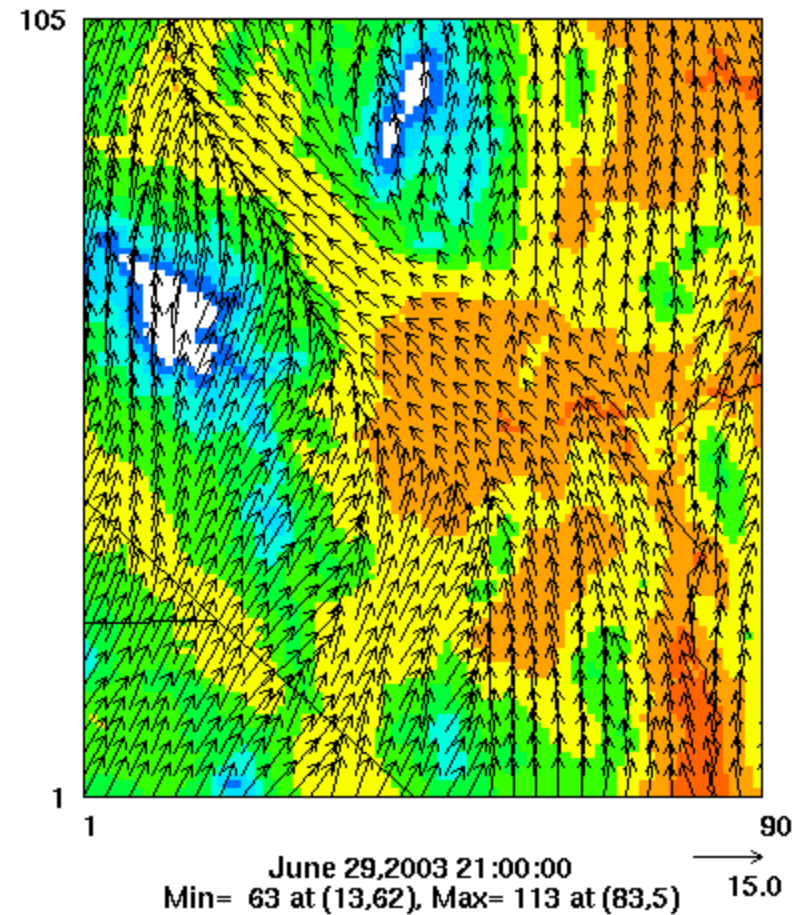
July 21, 2003

MM5 Surface Wind and 2-m Temperature

MM5 - 4 km Domain



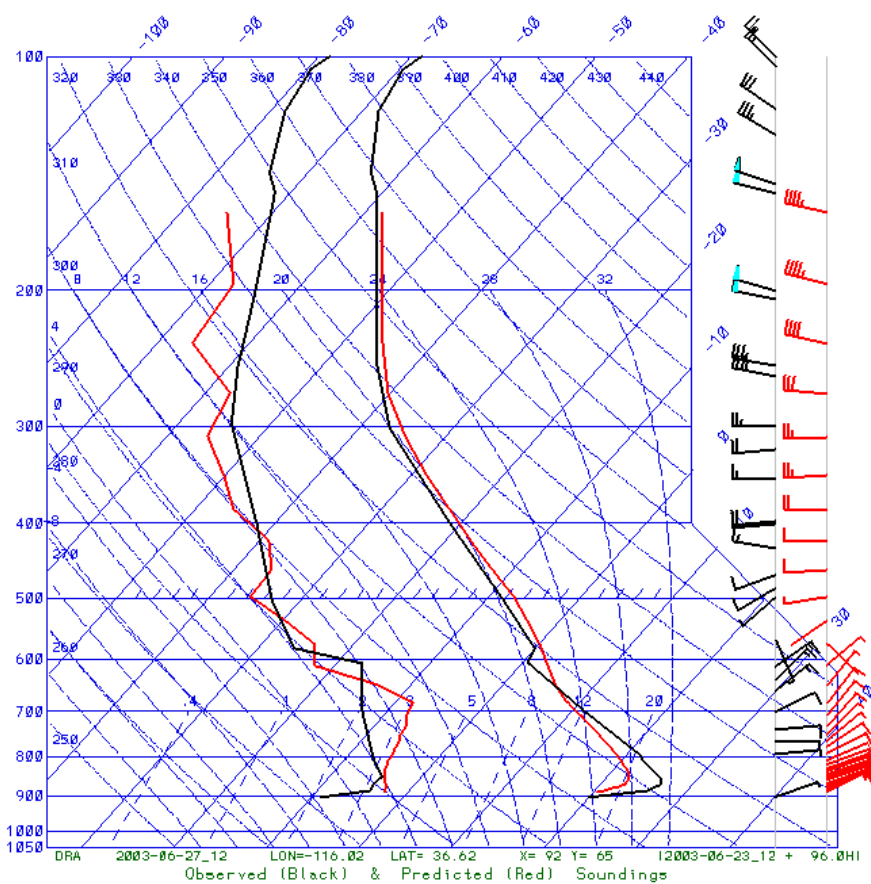
MM5 - 1.33 km Domain



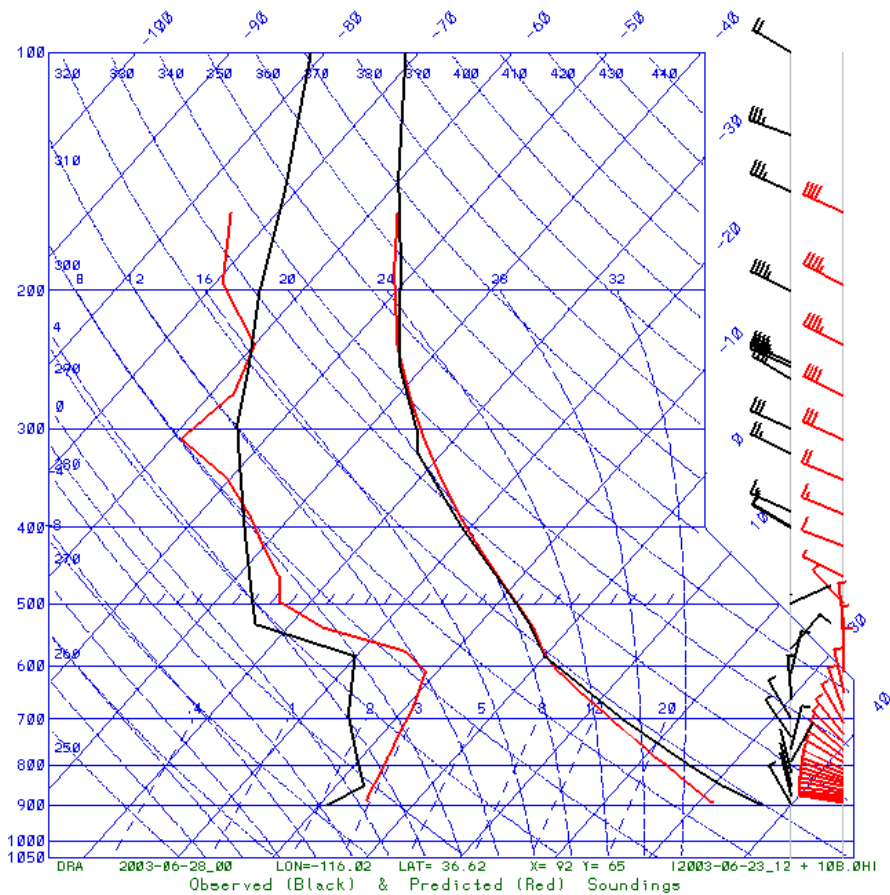
Skew-T Plots

Desert Rock, Nevada

6/27/2003 5:00 am



6/27/2003 5:00 pm

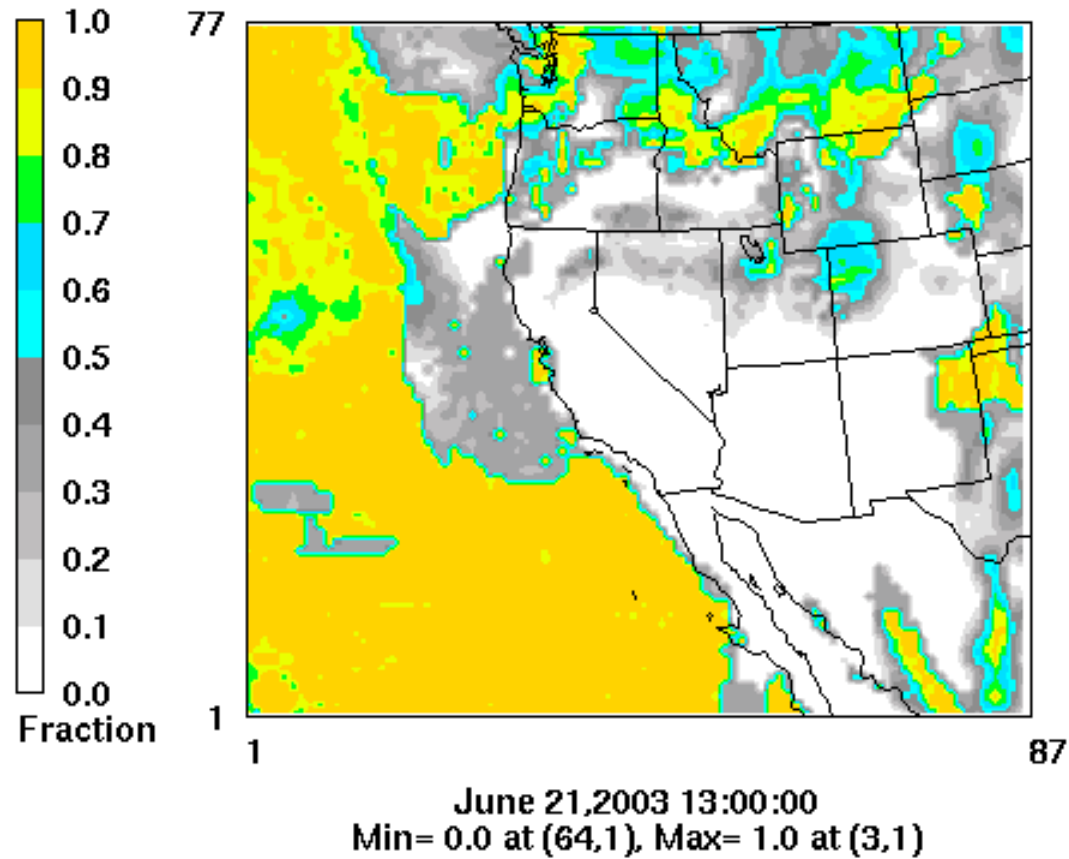


Observed (Black), MM5 (Red) Sounding

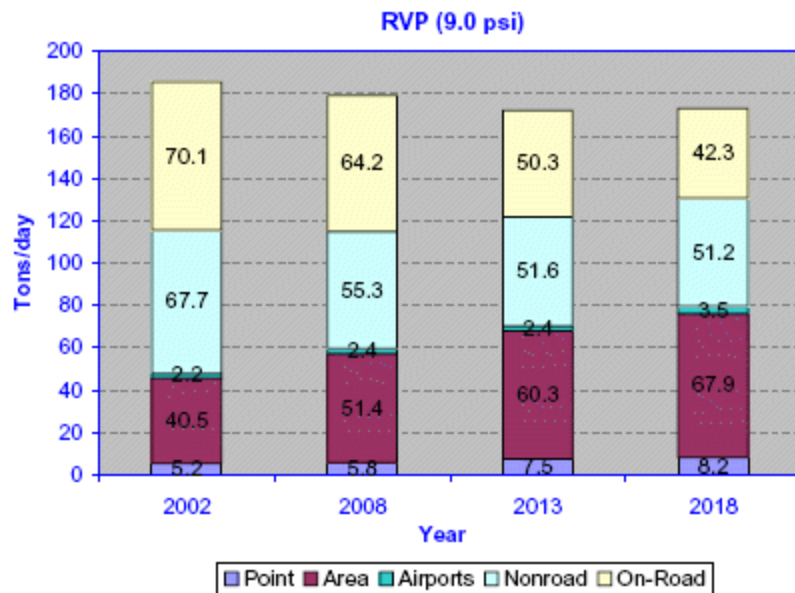
Clark County MM5 Modeling

Total Cloud Fraction

MM5 - run2

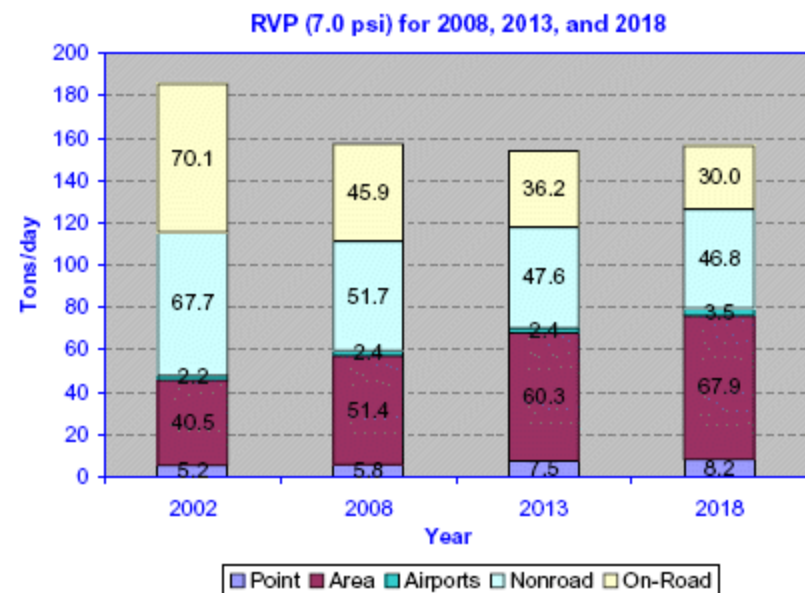


Clark County VOC Emissions



VOC Emissions (RVP 9.0 psi)

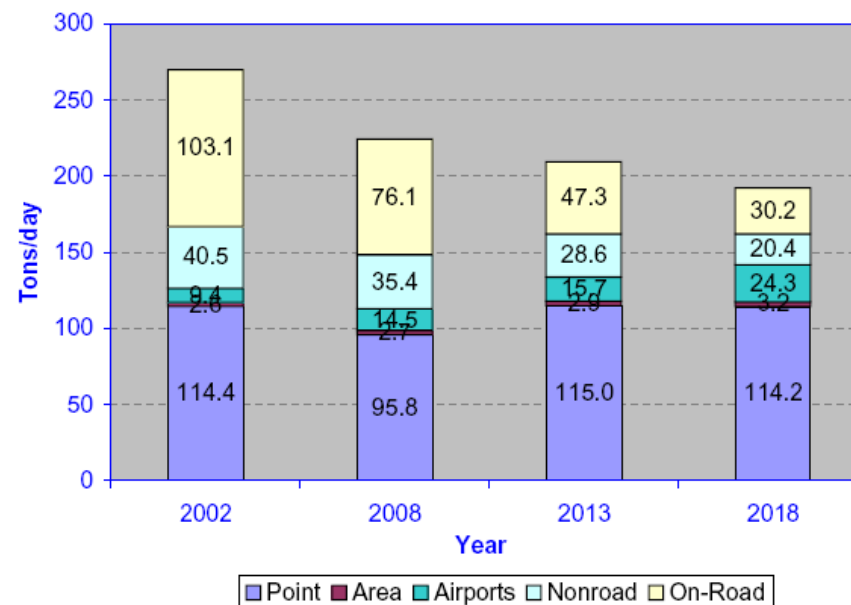
	2002	2008	2013	2018
Major Stationary Sources	5.2	5.8	7.5	8.2
Area Source Emissions	40.5	51.4	60.3	67.9
County Airports	2.2	2.4	2.4	3.5
Non-Road Mobile Sources	67.7	55.3	51.6	51.2
On-Road Mobile Sources	70.1	64.2	50.3	42.3
Total:	185.7	179.1	172.2	173.1



VOC Emissions (RVP 7.0 psi)

	2002	2008	2013	2018
Major Stationary Sources	5.2	5.8	7.5	8.2
Area Source Emissions	40.5	51.4	60.3	67.9
County Airports	2.2	2.4	2.4	3.5
Non-Road Mobile Sources	67.7	51.7	47.6	46.8
On-Road Mobile Sources	70.1	45.9	36.2	30.0
Total:	185.7	157.1	154.1	156.4

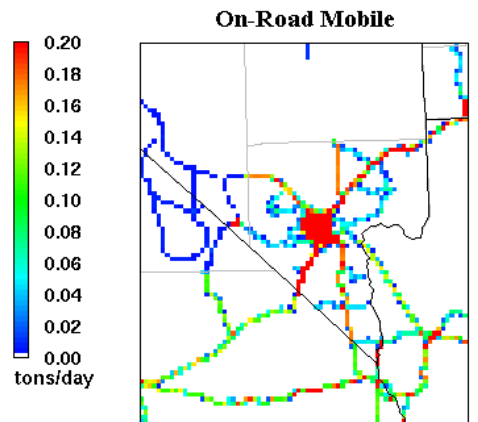
Clark County NOx Emissions



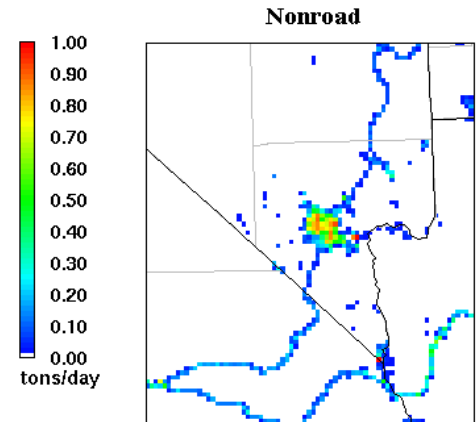
NOx Emissions

	2002	2008	2013	2018
Major Stationary Sources	114.4	95.8	115.0	114.2
Area Source Emissions	2.6	2.7	2.9	3.2
County Airports	9.4	14.5	15.7	24.3
Non-Road Mobile Sources	40.5	35.4	28.6	20.4
On-Road Mobile Sources	103.1	76.1	47.3	30.2
Total:	270.0	224.5	209.5	192.3

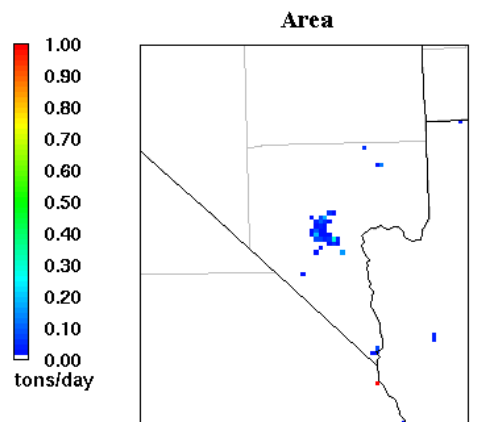
2003 Gridded NOx Emissions (LV 4km)



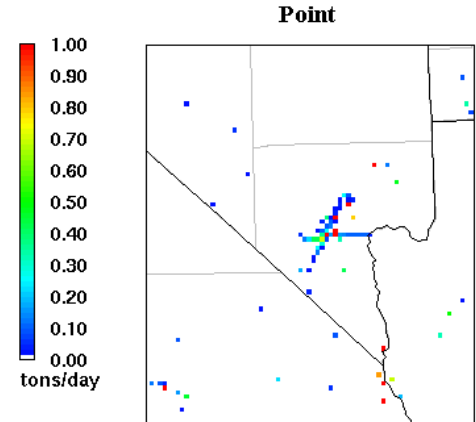
July 9, 2003 0:00:00
Min= 0.00 at (3,1), Max= 5.63 at (41,45)



July 9, 2003 0:00:00
Min= 0.00 at (21,59), Max= 1.05 at (49,43)

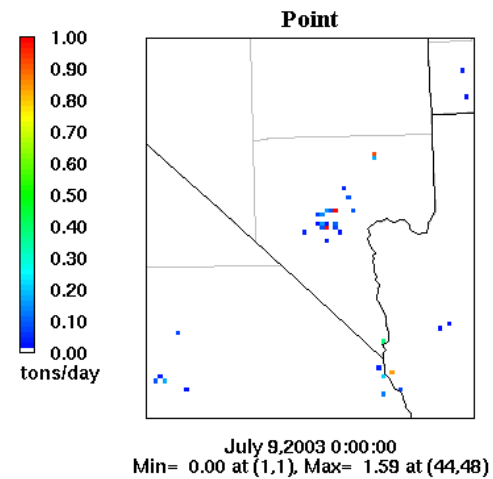
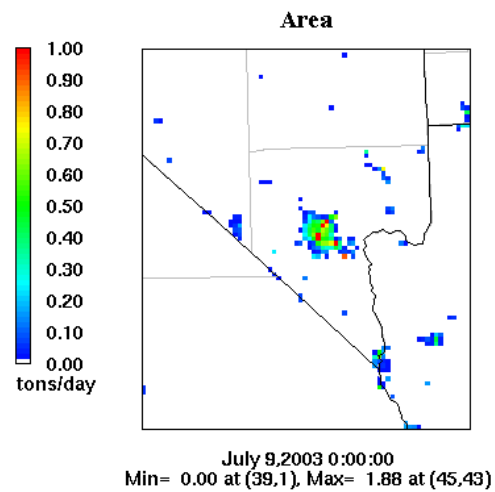
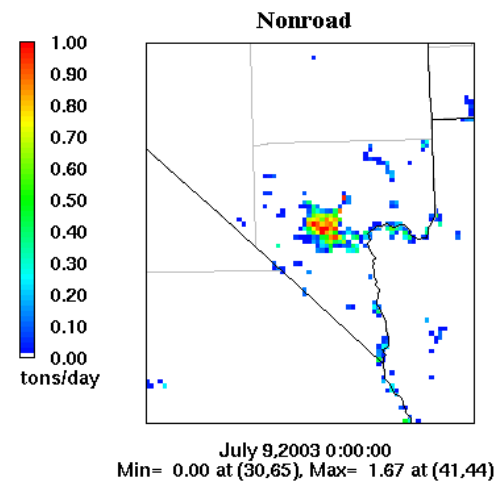
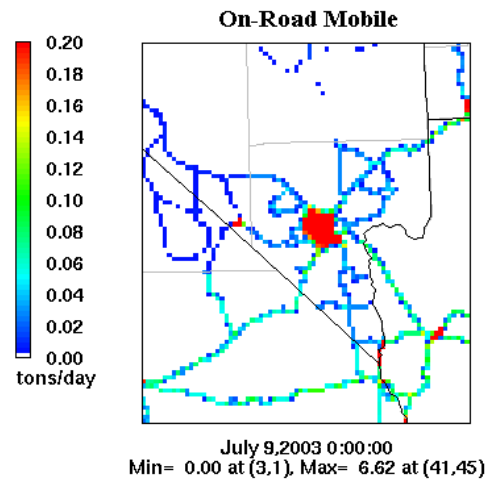


July 9, 2003 0:00:00
Min= 0.00 at (46,46), Max= 1.54 at (55,10)



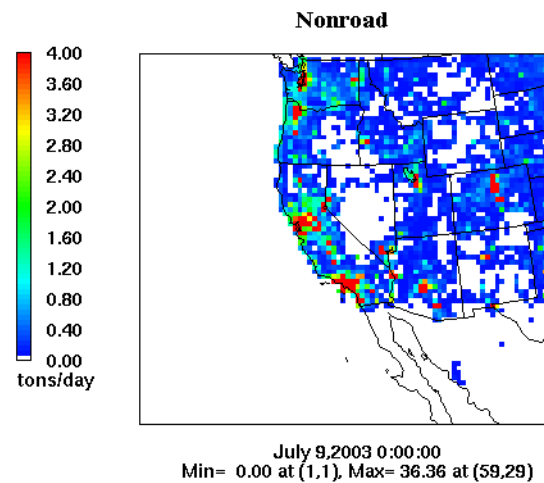
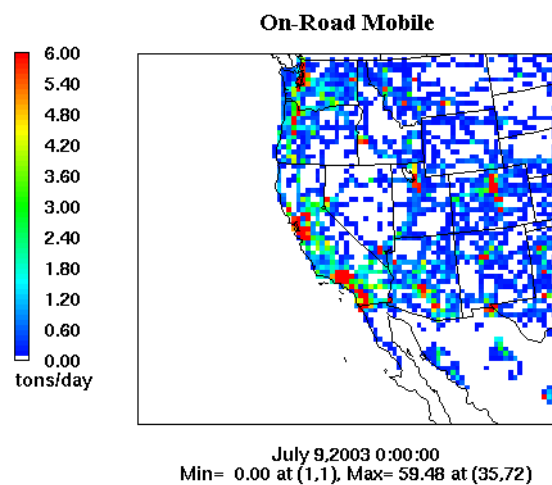
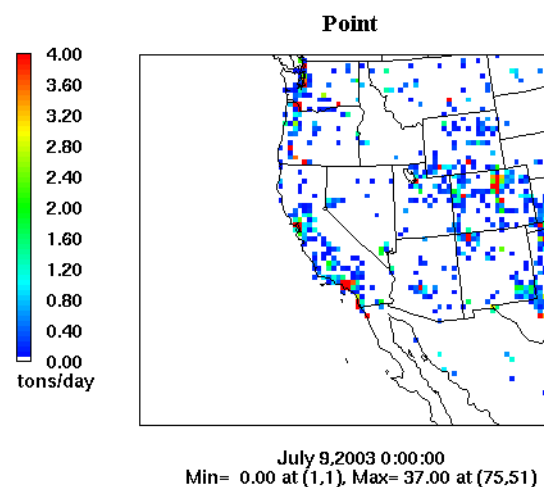
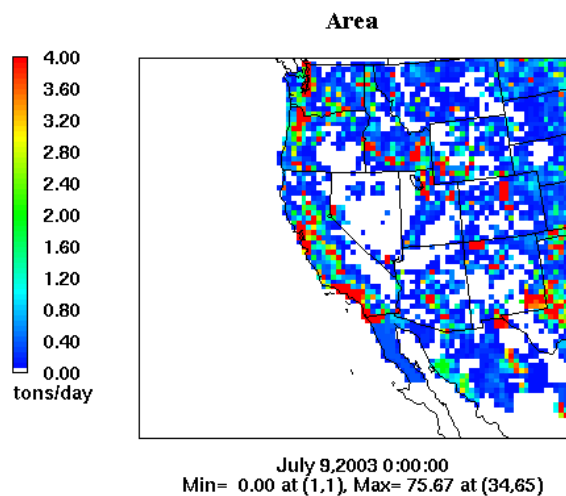
July 9, 2003 0:00:00
Min= 0.00 at (1,1), Max= 53.09 at (55,18)

2003 Gridded VOC Emissions (LV 4km)



2003 Gridded VOC Emissions (LV 36 km)

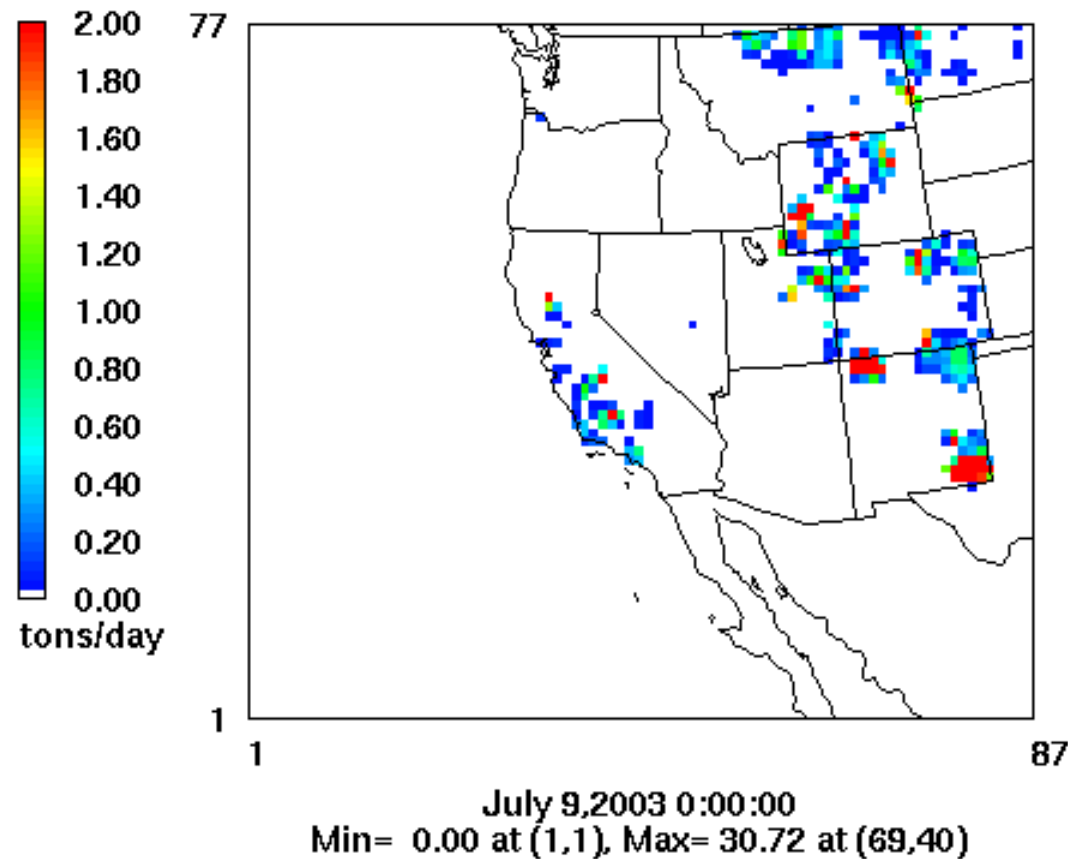
Generated with SMOKE



Gridded Oil and Gas Emissions (LV 36 km)

Oil & Gas Emissions - NOX

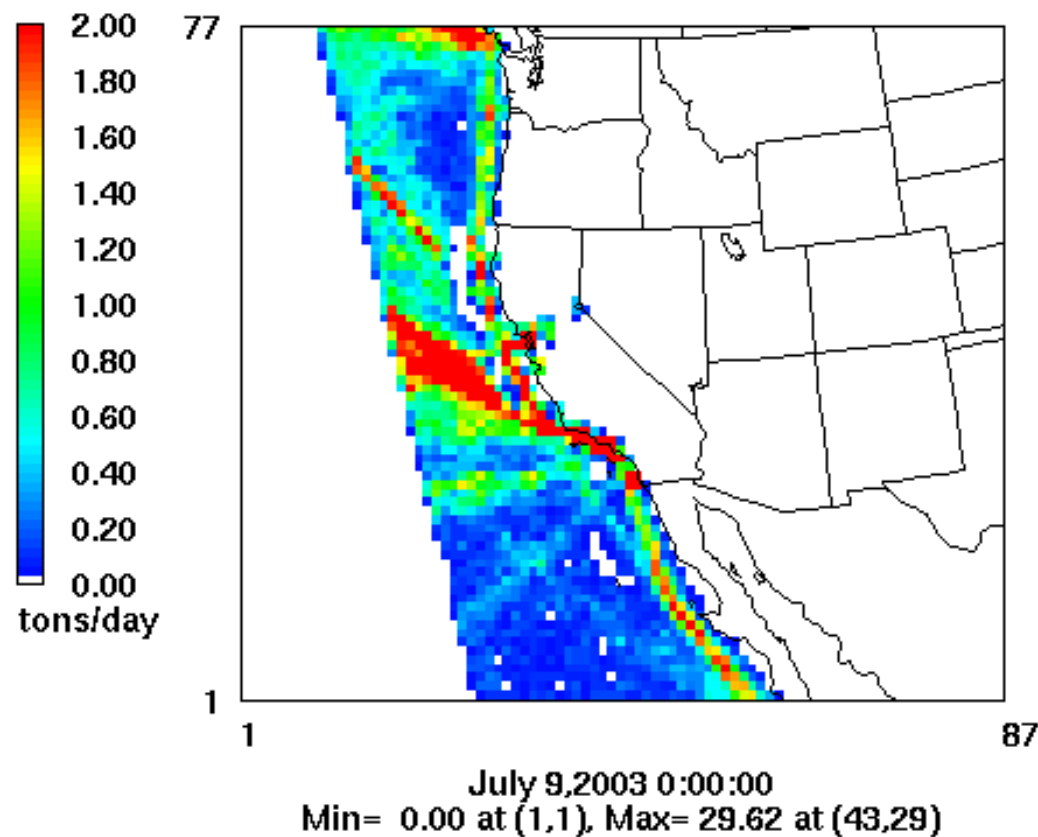
SMOKE - 2003 Emissions (Daily Total), b02a
Clark County DAQEM: lv36



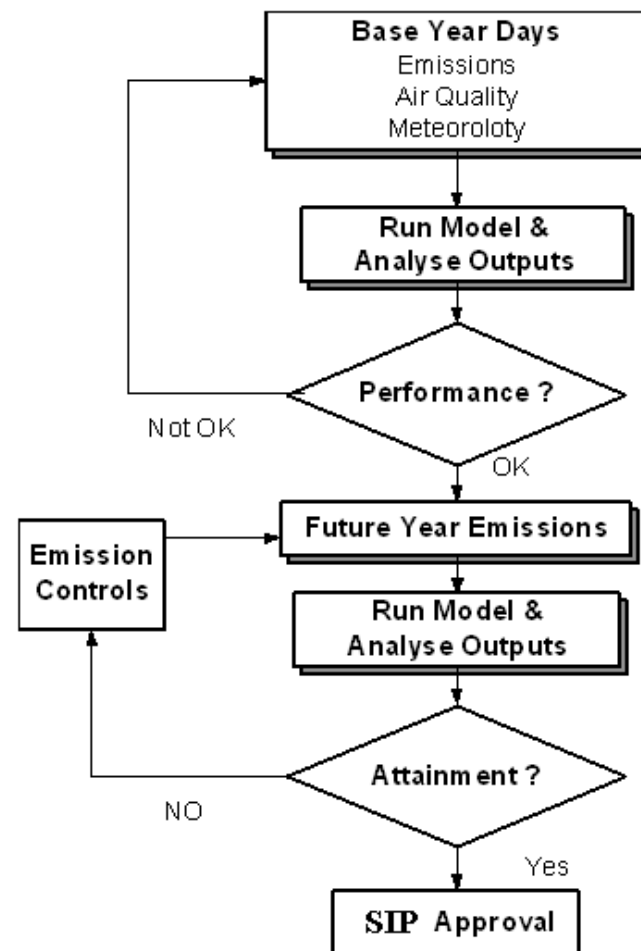
2003 Commercial Marine Emissions (LV 36 km)

Commercial Marine Emissions - NOX

2003 Emissions (Daily Total), b03b
Clark County DAQEM



Modeling For SIP Development



Modeled Attainment Tests

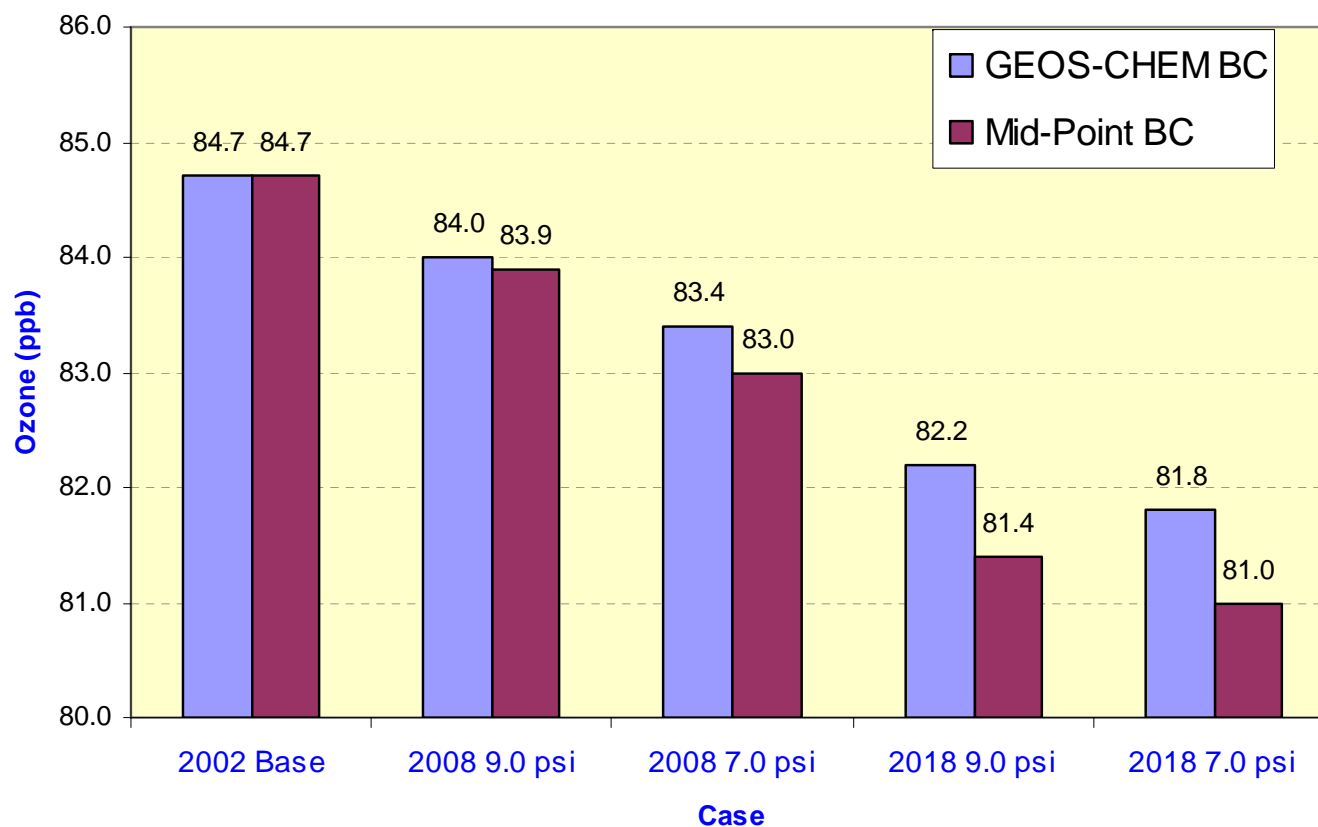
- According to EPA's new guidance, all model results are used in a “relative” sense.
- Relative Response Factors (RRF)

$RRF = \text{predicted future year} / \text{predicted base year}$

$\text{Future Design Value} = \text{Base Year Design Value} \times RRF$

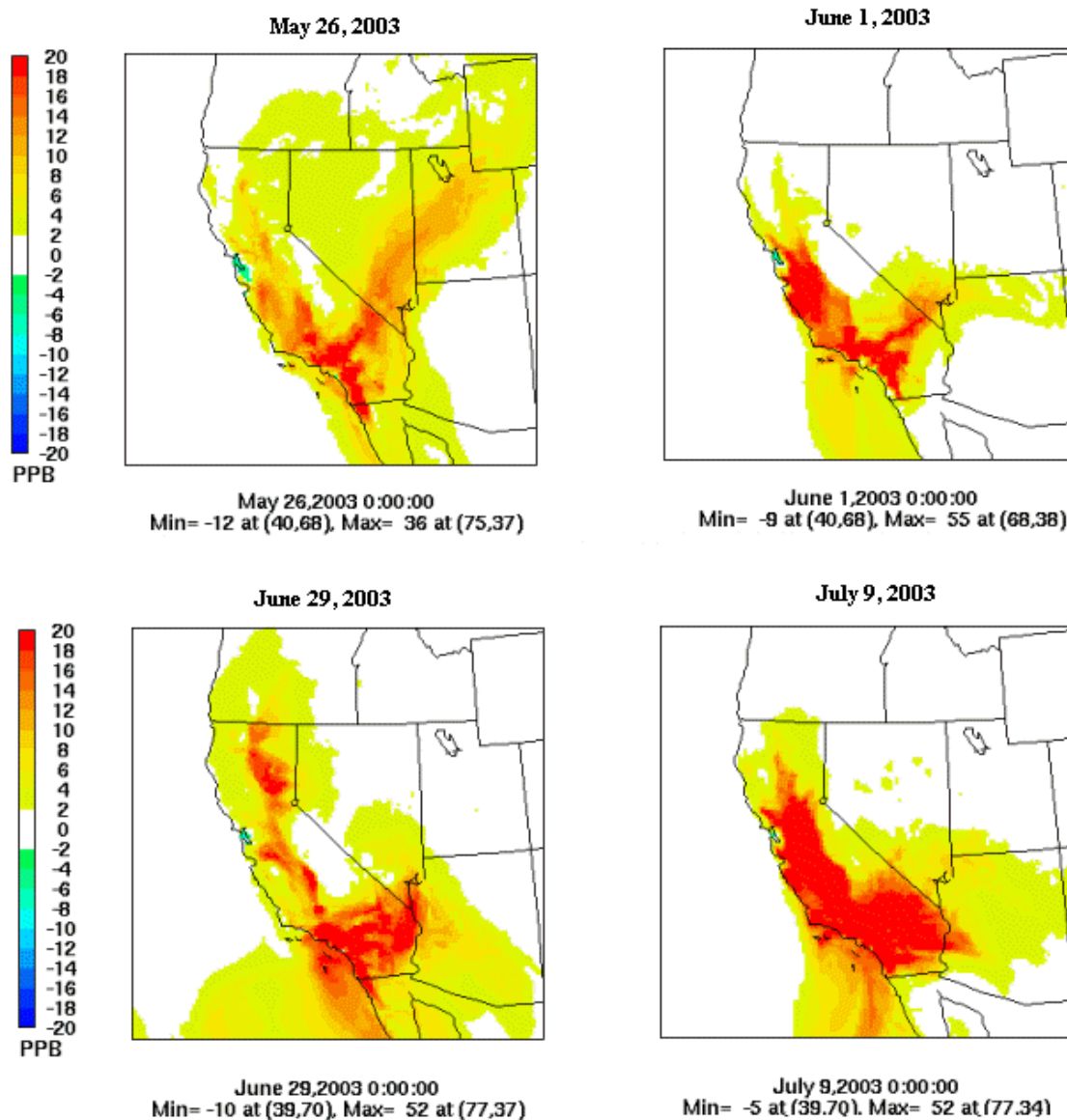
Modeled Attainment Tests at Monitoring Sites

Modeled 8-hour Ozone Design Value Joe Neal



Impact of Ozone Precursor Emissions in California

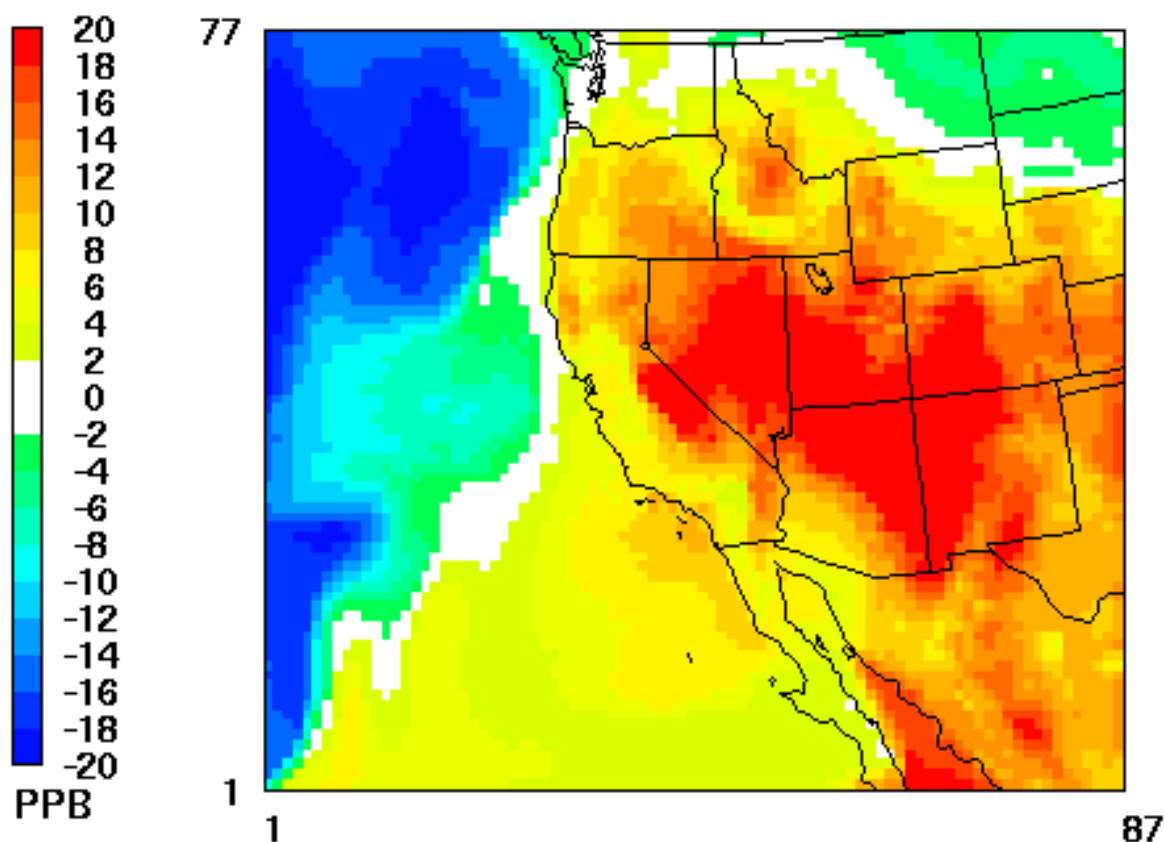
(Model Predicted Daily Max 8-hour Ozone)



Long Range Ozone Transport from Outside 36km Domain

CMAQ 8h Max Ozone Diff

2003 emissions : b03g70B - b03g70
Clark County Domain: 36 km

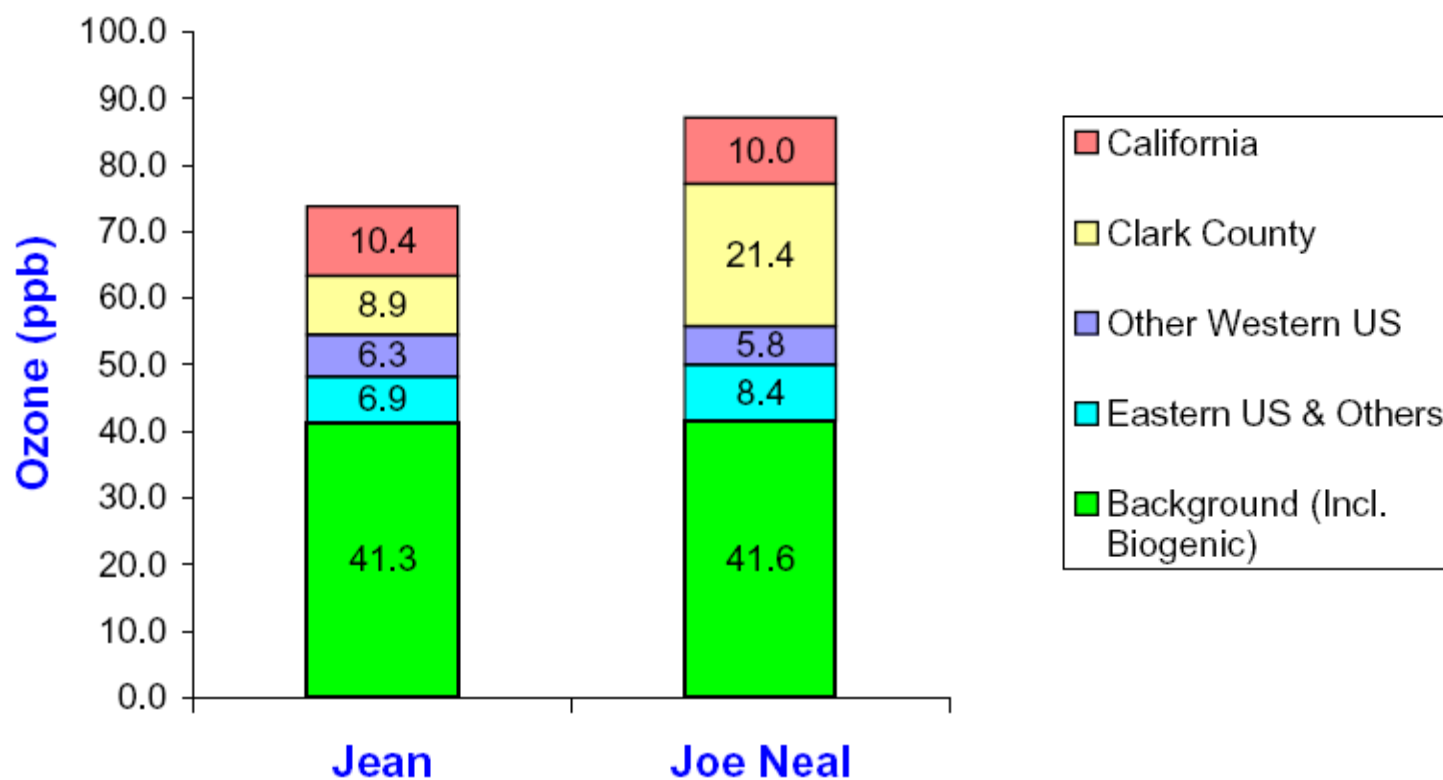


June 29, 2003 0:00:00
Min= -22 at (3,62), Max= 28 at (67,29)

Ozone Contributions from Different Source Regions

8-hour Daily Max

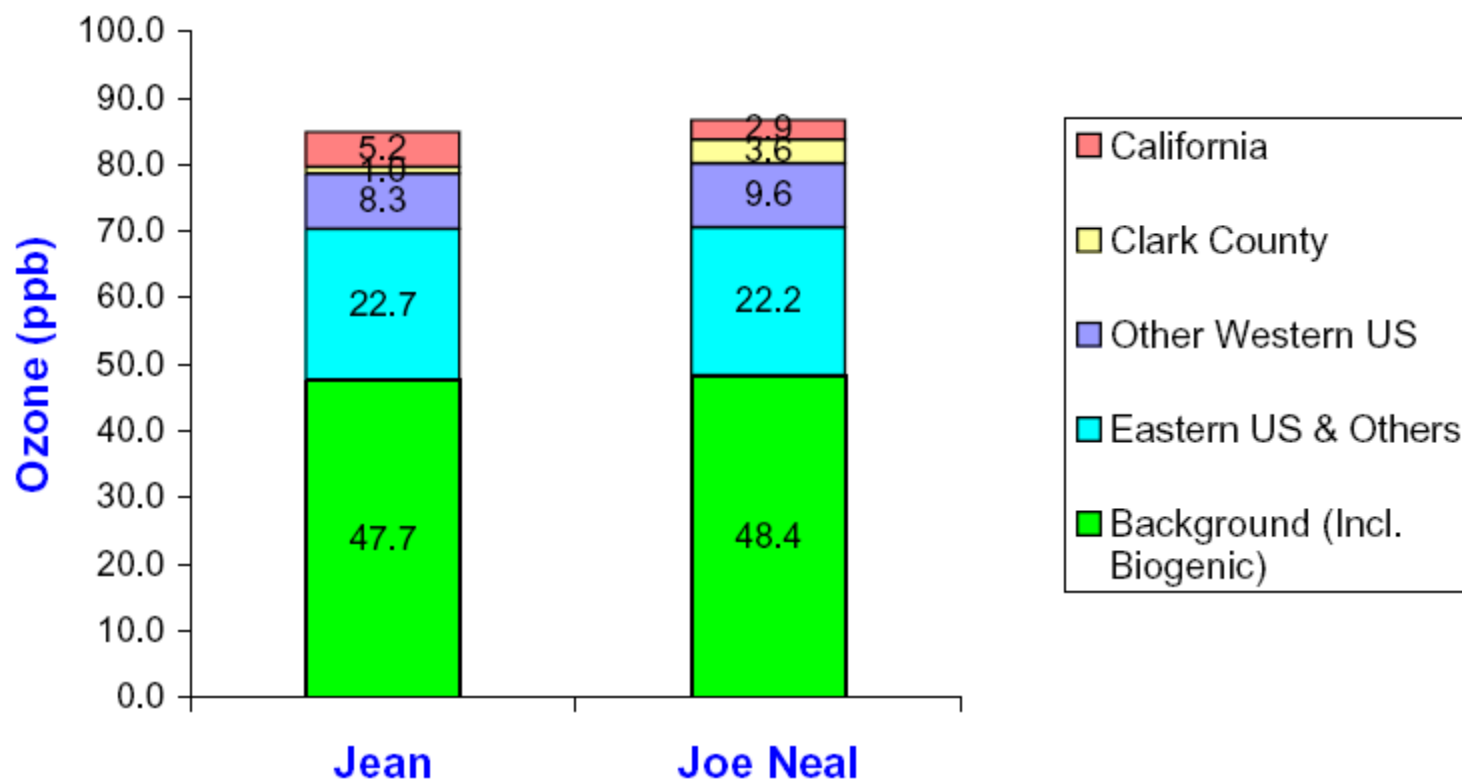
July 9, 2003



Ozone Contributions from Different Source Regions

8-hour Daily Max

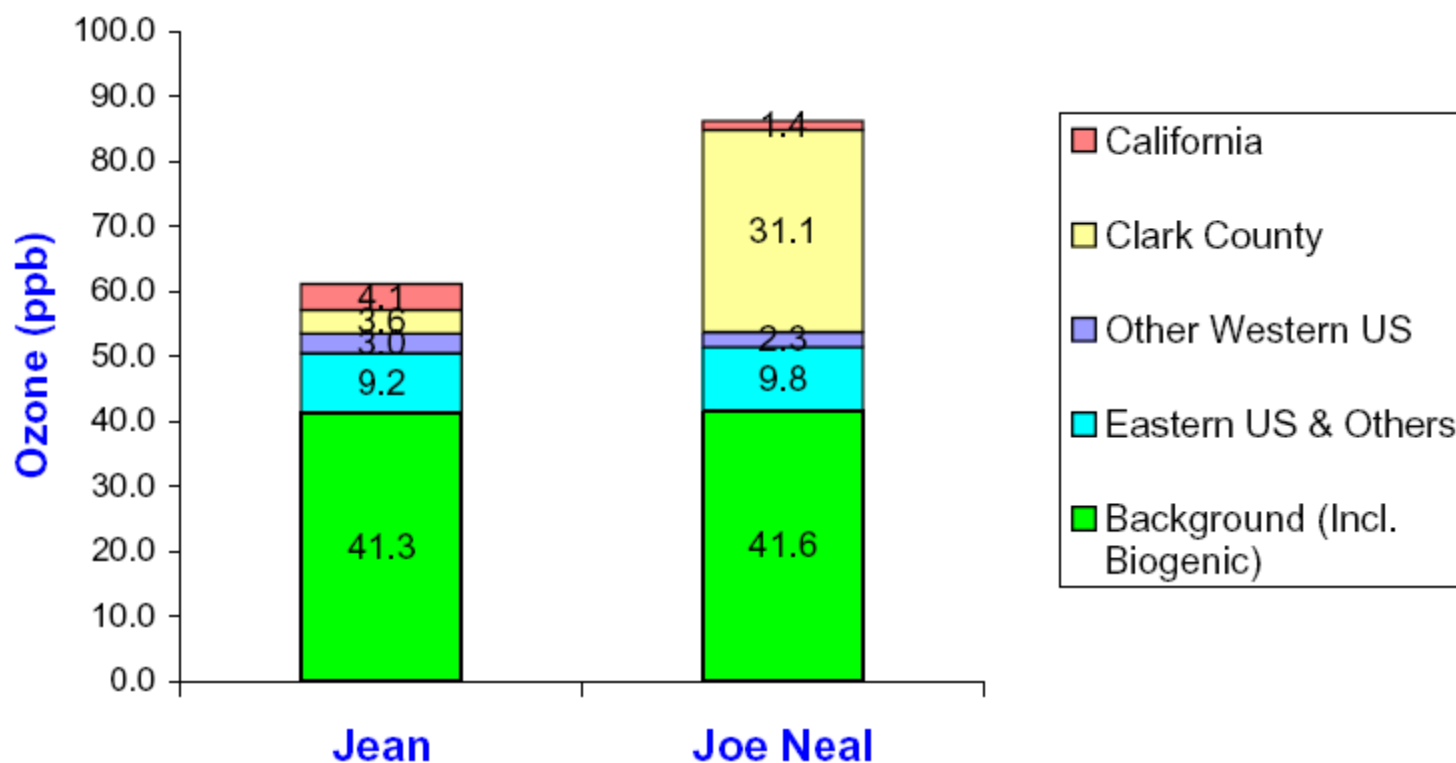
June 29, 2003



Ozone Contributions from Different Source Regions

8-hour Daily Max

July 21, 2003

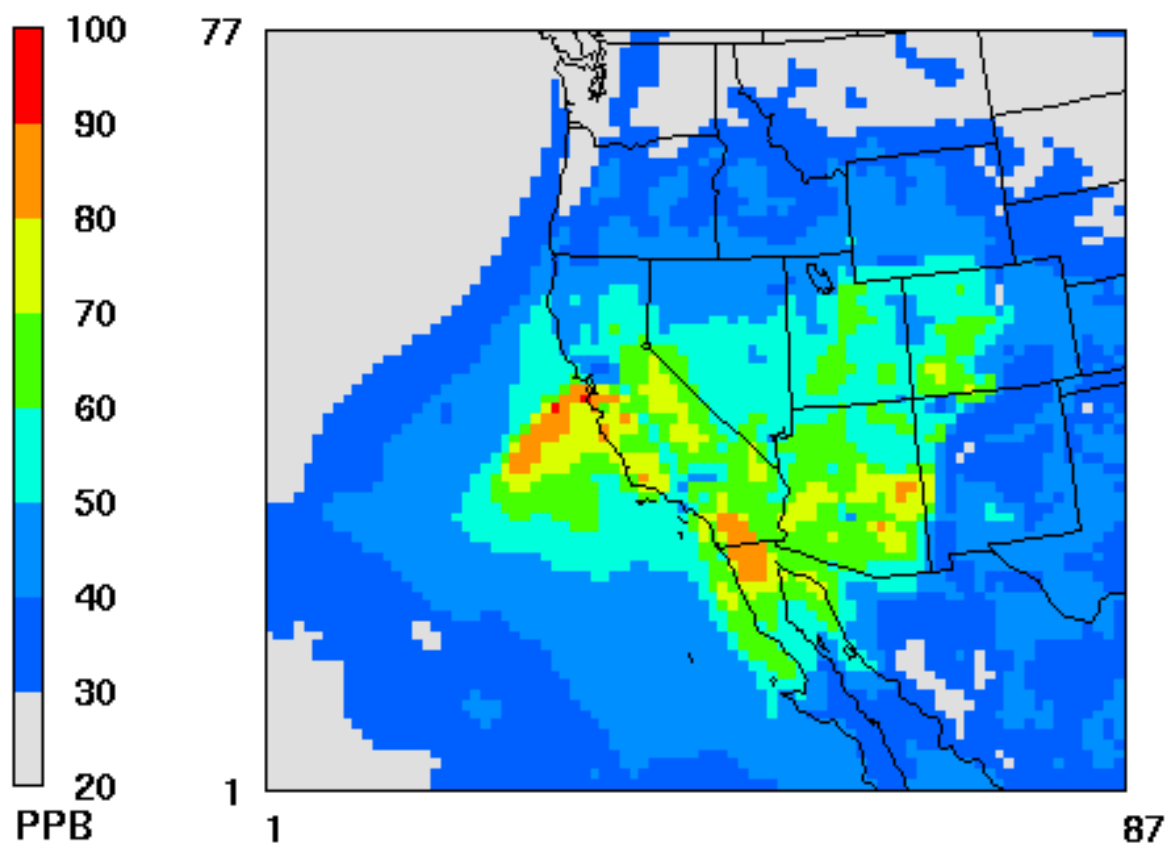


Conclusions

- Model's performance is considered acceptable for Clark County modeling application. Therefore, we can use this model application to conduct ozone control strategy analyses in Clark County.
- Modeled attainment test at monitoring locations indicates that the existing federal and local controls will be sufficient to meet the ozone NAAQS at all Clark County monitoring sites in 2008 and 2018.
- Model results indicate that there are significant ozone transport from California to Clark County. We also found from the modeling that there may be significant long range ozone transports from outside 36 km domain probably from eastern U.S.

CMAQ 1h Ozone

2003 Emissions: b03g70B
Clark County DAQEM: lv36



June 27, 2003 0:00:00
Min= 6 at (35,71), Max= 92 at (30,39)

Attachment 4

Ozone Clean Data Finding Request

CLARK COUNTY DEPARTMENT OF AIR QUALITY AND
ENVIRONMENTAL MANAGEMENT

July 10, 2007

John Koswan

Why?

- For the current 3 years (2004-2006) Clark County is in attainment of the current 8-hour standard
- The D.C. Circuit Court vacated the Ozone Phase 1 Implementation Rule in December 2006
- On June 8, 2007 the D.C. Circuit court ruled against EPA in the rehearing request and the EPA acknowledged that ozone SIPs are not required to be submitted at this time.

What is a Clean Data Finding?

- The EPA may issue a finding of attainment based on a designated areas submitted data.
- The data must show that the area is currently in attainment of the standard.
- The EPA can request additional information including air quality modeling, emissions inventories, trends analysis etc.

Why submit a request?

- The muddle created by the court case, EPA has no criteria to act on a attainment SIP submission.
- First step in filing a Maintenance SIP, EPA can act on a Maintenance SIP.
- Allows for submission of a Transportation Conformity Budget.

What are the contents?

- Submission Letter
- Summary discussion of trends in historical measured ozone ambient air quality
- Summary of analyses of wildfire events during 2004 to 2006 and their influence on ambient ozone.
- Summary of current and projected future emissions of VOC and NOx emissions out to the year 2018.
- Summary of an assessment of reasonably available control measures (RACM) as necessary to provide for attainment of the ozone NAAQS.
- An overview of the photochemical modeling approach being applied in Clark County and results of modeled attainment tests for the years 2008 and 2018.

What Next?

- Awaiting a decision from EPA, could take a year or more.
- 2007 Southwest Desert Las Vegas Ozone Transport Study (SLOTS)
- EPA has proposed a new 8-hour ozone standard.
- Once EPA makes its finding Clark County will submit a Maintenance SIP based on the Attainment SIP work.

Questions?

Attachment 5

PM₁₀ State Implementation Plan *“Milestone Achievement Report”*



Clark County, Nevada
Department of Air Quality and
Environmental Management

Milestone Achievement Report (MAR)

- Purpose of the MAR
 - Documents achievement of qualitative milestones defined in the SIP
 - MAR documents attainment of the National Ambient Air Quality Standards (NAAQS)

Federal Elements of the MAR

- Summary of three consecutive years of air quality data (2004, 2005 and 2006) demonstrating NAAQS compliance
- Documentation of implementation: SIP control measures (quantitative milestones)
- Documentation of implementation: SIP commitments (if applicable)

Additional Clark County MAR Elements

- Describes research conducted under programs implemented for the SIP
- Request for clean data finding / finding of attainment
- Implement non-regulatory control measures

Clark County PM₁₀ SIP Commitments

- Conduct specified research
- Update specified emissions inventory categories
- Re-model attainment demonstration

PM₁₀ SIP Emission Inventory Updates

- Refined vacant land emission factors
- Refined vacant land soil characterization
- Updated inventory of vacant land

PM₁₀ SIP Emission Inventory Updates (cont.)

- Updated Construction Activities Emissions
- Updated on-road mobile sources emissions inventory
- Updated private unpaved roads inventory
- Updated Non-Road Emissions Inventory

PM₁₀ SIP Commitment Completion

- Conduct a PM₁₀ saturation study – completed 2006
- Develop an improved construction inventory – completed 2006
- Improve the emission factors for native desert and disturbed areas – completed 2006
- Track silt-loading on paved roads – completed 2006

SIP Commitment Completion (cont.)

- Stabilize shoulders for paved roads – completed 2006
- Encourage adoption of dust suppressant product specifications – work on-going

Updated Attainment Demonstration Model

- Requirement triggered by a significant change in 2003 emission inventory
 - 26,440 acres (net) added to BLM Disposal Boundary in 2003
- Used automated System Dynamics Proportional Rollback Model to insure consistent results

What's Next?

- Maintenance PM₁₀ State Implementation Plan
i.e., **“Maintenance SIP”**
 - Similar to a PM₁₀ SIP
 - Emission inventories, control measures, ...etc.
 - Demonstrate continued attainment of the PM₁₀ NAAQS for ten (10) years
 - Submit plan following EPA finding of attainment, 2008-2009

Questions ?

Please Contact:

Clark County Department of Air Quality &
Environmental Management at 455-5942 or

Log on to:

www.accessclarkcounty.com